



University of Alberta
PLAN 570 Advanced GIS for Planners
/ HGP 570 Advanced Geographical Information
Systems for Social Science
Winter 2018

Instructors

Professor: Dr. Manish Shirgaokar, AICP
 Email: shirgaokar@ualberta.ca (preferred for communication)
 Office: Tory 3-113
 Office Hours: Tuesday and Thursday 4:00 P.M. – 5:00 P.M. (sign up at <https://www.wejoinin.com/sheets/wienf>)

Teaching Assistant: Darcy Reynard
 Email: reynard@ualberta.ca
 Office: Tory 3-110
 Office Hours: By appointment

Course Logistics

Section: B3-LEC and H03-LAB
 Class #s: PLAN 570 (Class 95427 / Lab 95428)
 HGP 570 (Class 95425 / Lab 95426)
 Location: CCIS L1-219 (Lecture and Lab)
 eClass: <https://eclass.srv.ualberta.ca/course/view.php?id=42723>
 Time: Monday 2:00 P.M. – 4:50 P.M. (Combined lecture and lab)
 Notes: **PLAN 570:** Selecting LEC B3 will automatically register the student in LAB H03. All PLAN courses are restricted to MSc Urban and Regional Planning students.
HGP 570: Selecting LEC B3 will automatically register the student in LAB H03. See EAS and PALEO for other courses in Earth and Atmospheric Sciences. Where specified, HGP courses are restricted to students in EAS Specialization or Honors programs, other students may register starting on Aug 11 for Fall Term courses, and Nov 9 for Winter Term courses.

1. Calendar Description

PLAN 570: The application of spatial analytic tools to planning topics. Assignments impart technical aspects through hands-on experience with commercial and in-house spatial analysis software. Sections offered in a Cost Recovery format at an increased rate of fee assessment; refer to the Fees Payment Guide in the University Regulations and Information for Students section of the Calendar. Prerequisite: consent of Department.

HGP 570: Provides spatial analytic tools to social geographers and provides a social science perspective to geoprocessing students. Examples arise from marketing, operations research,

sociology, and urban and economic geography. Assignments impart technical aspects through hands-on experience with commercial and in-house spatial analysis software. Prerequisite: Consent of Instructor. Research project. Classes concurrent with HGP 470. Not available to students with credit in EAS 492, 592 or HGP 470.

2. Course Objectives and Outcomes

Objectives: The pedagogical emphasis of this course is on how to interpret an urban issue, identify sources for evidence, and analyze spatial information using commercial software. From a practitioner's perspective, the class will teach students how to be planners who are required to make evidence-based claims and defend them before an expert and non-expert audience. The methodological focus of this course is to show students how to use commercially available software (ESRI's ArcGIS 10.x) to visualize and analyze spatial data as planners. Students will learn how to apply GIS analysis to real world planning problems using publicly available datasets. This is a hands-on skills building course with a primary emphasis on city/urban spatial data. Through a series of lectures and lab exercises the students will learn how to identify key spatial issues, run analyses on the gathered information, and present output as maps.

Outcomes: At the end of this course the students will be able to:

- Select and create appropriate thematic maps for data with different levels of measurement
- Design attractive, readable and useful maps through good cartographic practice
- Utilize basic geoprocessing tools (e.g., buffer, intersection, union, clip/erase, spatial join) to address planning questions
- Use spatial data showing real-world planning problems, and present possible policy recommendations for resolving planning issues
- Process and analyze GIS data related to the urban and regional planning profession
- Create conference-style posters and research reports to summarize analysis
- Make an effective presentation of the kind that planners are routinely asked to make to decision-makers and the public

3. Professional Planning Accreditation Requirements

PLAN 570 / HGP 570 is an advanced course for students in the MSc Planning Program / other graduate programs. For students enrolled in the programs, this course contributes to developing the knowledge, skills, and ethics identified by Canadian Institute of Planners (CIP) as necessary components for practice as a professional planner. This course provides an introduction to all of the components as identified by the CIP, however the following are emphasized:

Functional Competencies under CIP

- Human Settlement
- Policies and Application
- Plan and Policy Considerations
- Plan and Policy Making

Enabling Competencies under CIP

- Critical Thinking
- Interpersonal
- Communications

4. Course Format and Workload

Students enrolled in PLAN 570 / HGP 570 are required to finish the research term project and term paper individually. The class has no written exam but the workload requires students to budget around 6-9 hours weekly for the class, especially for lab assignments, term project development, and report writing. The laboratory exercises and assignments are integral parts of the course and help illuminate the principles of spatial analysis—they teach skills that are useful in the planning job market. To make learning more pertinent to student interests, the lab exercises use real data from local communities, with a focus on Edmonton. You will get familiar with ArcGIS 10.x and get to know the Edmonton Open Data Catalogue (<https://data.edmonton.ca/browse?sortBy=newest&utf8=%E2%9C%93>) mainly via the assignments.

Labs/Assignments: The course has six (6) labs which are run during lecture hours, and six (6) homework assignments associated with the labs that have to be submitted on eClass. All labs and assignments will be available on the class website at 2:00 P.M. on the day of class. These labs constitute a bulk of the workload during class hours. Lab time is critical and gives an opportunity for one-on-one instruction. You will get most help during lab hours—both for your labs and the term project (see below). Students cannot collaborate on labs or homework assignments. Each student must submit unique work products for each assignment. Plagiarism will not be tolerated. Your ability to use ArcGIS and the quality of your term project will benefit from attending and finishing each lab and assignment individually.

Term Project: Students are encouraged to find urban policy-based stories from Edmonton to seek inspiration for project ideas. Some sample issues are: differences between neighborhoods, suburbanization, infill development, bicycle infrastructure, speeding, pedestrian and bicyclist safety, locating schools, and others.

You must choose one issue to focus on as a term project. You are required to formulate an argument, relying on data available in class, run analyses, and present the output on one (1) 40.5” wide x 35” tall poster with ½” mandatory border on all sides. You are required to defend your arguments using this poster at the final exam where the audience may include experts from campus and the City, and non-expert citizen members from Edmonton. The purpose of the term project is to give you a chance to apply all of the tools you learn in the class to an area of your interest. You should start analyzing the datasets you will need and creating some of the maps for the final project while completing the assignments. Soon after learning the tools each week, you are expected to take a lead on incrementally preparing your final project. The instructor will be available in class and during office hours to discuss issues. Further details about expectations for each deliverable will be provided later during the course.

A focus on critical thinking with analysis must be evident in the work produced. Students are required to produce an 8-12 page double-spaced paper (not including title, abstract and references). This paper must have an abstract, introduction, brief literature review, methodology, main findings, discussion, conclusions and policy recommendations, and reference list.

Class Participation: In order to encourage you to share your thoughts and ideas with the class, 10% of your course grade will be determined by the quality and quantity of your participation in various course activities. You can earn participation credits by answering questions, asking questions, or commenting in class; or by posting to discussions on the class website. As a result, attendance/engagement will have an impact on your grade; however, the instructors will not take attendance at every class session.

5. Schedule for Class Sessions

NOTES: All labs will be available on eClass at the start of the session, and all assignments will be due at the start of the next session the following Monday (unless specified otherwise). The three best assignments (anonymized) will be shared with the class to enable learning from peers.

Week	Date (Mondays except where noted – location if different from CCIS LI-219)	In-class (mandatory) activity	Details and Homework
1	Jan 8	Lab 1: Working with Census Data + Introduction to ArcMap	Guest Lecturer: Larry Laliberte Assignment 1: Working with Census Data (5% of grade).
2	Jan 15	Lab 2: Database Management and Microsoft Excel	Syllabus discussion. Study of posters from Winter 2015-17. Class databases/folders. Comments on homework. Final presentation. Assignment 2: Database Management and Microsoft Excel (6% of grade).
3	Jan 22	Lab 3: Map Making	Assignment 3: Map Making (5% of grade).
4	Jan 29	Lab 4: Vector-based Geoprocessing	Assignment 4: Vector-based Geoprocessing (6% of grade). Term project write-up due.
5	Feb 5	Lab 5: Network Analysis	Assignment 5: Network Analysis (7% of grade).
6	Feb 12	Lab 6: Suitability Analysis with Weights and Heat Maps	Assignment 6: Suitability Analysis with Weights and Heat Maps (6% of grade) (due Feb 26). Assignment 7: Mid-term Project Presentation (7% of grade) (due Feb 26).

7	Feb 19	Reading Week	No Class. Work on Term Project strongly recommended.
8	Feb 26	Term project preparation	In-class discussion of project data analysis and outputs. (Instructor may take attendance at start and end of class session).
9	Mar 5	Term project preparation	In-class discussion of project data analysis and outputs. (Instructor may take attendance at start and end of class session).
10	Mar 12	Term project preparation	In-class discussion of project data analysis and outputs. (Instructor may take attendance at start and end of class session).
11	Mar 19	Poster preparation	In-class discussion of poster preparation. (Instructor may take attendance at start and end of class session). Assignment 8: Final Draft Posters using Microsoft PowerPoint. (13% of grade).
12	Mar 26	Mock Final Project Presentation	In-class <i>table discussion</i> of posters using Microsoft PowerPoint. 10 minutes per poster, including Q&A (reviews divided between instructors).
13	Apr 2	University Closed	No Class. Work on Term Project strongly recommended.
13	Apr 6 (Friday) (Tory 3-110)	Final poster submissions	One printed copy of final poster to be dropped off in Tory 3-110 with Darcy Reynard by 2.00 P.M. – <i>Absolutely No Exceptions!</i>
14	Apr 10 (Tuesday – City Hall)	Final Poster + Presentation	Different time than regular class, location City Hall. (35% of grade). (Apr 9 Monday class moved to Apr 10 Tuesday.)
14	Apr 13 (Friday)	Term Paper (for 500-level students)	Term paper to be uploaded on eClass by 2:00 P.M.

6. Required Textbooks / Other Major Course Materials

There is no required textbook for this class. Instructor may recommend journal papers to read and review during the semester through announcements on eClass.

7. Class Behavior / Attendance

The material in this course cannot be learned remotely. Students are expected to attend all lectures / labs and finish all the homework assignments. The labs are sequential and get more complex. Students should be aware that any absence will result in setbacks that will be noticeable to you. The class lectures do not cover all aspects of learning, which the in-class (mandatory) labs are designed to impart.

Students are expected to arrive on time for all sessions and meetings. The lab has a computer for

each student, so it will be more effective to use the lab computers, which have the required software. All cell phones need to be on silent during lecture/lab sessions and meetings.

8. Course Website and Technology

The course has an eClass website: <https://eclass.srv.ualberta.ca/course/view.php?id=42723>. Students are to use this forum to access lab notes and homework assignments, and to submit homework assignments and progress on projects. You will receive announcements through this class website. Students are required to visit the course website regularly to download course materials and get important updates. It is the student's responsibility to make sure that you are able to login to the website. If you are unable to login to the course website please consult the eClass support webpage for further instructions.

Software: Students can elect to receive a copy of ArcGIS 10.x Desktop timeout edition as part of the university license (see <https://ualberta.onthehub.com/WebStore/OfferingDetails.aspx?o=4bd47231-e8b5-e311-93fb-b8ca3a5db7a1>). Please review "System Requirements" on the onthehub webpage before downloading and installing the software. It is recommended that you get the same version as available in CCIS L1-219.

Other: The instructor recommends that you keep a flash drive (~ 16GB) or a portable hard disk drive on you to carry data. Spatial data can add up rapidly based on your information sources and what data you need for your term project. Please note that you are responsible for all your data. The class hard drives will be wiped clean at the end of the term. You are expected to make a copy of your data for future reference.

9. Lab Access, Course Fees (If Applicable), and Gaining Access to Past or Representative Evaluation Course Material

Please check with Nancy Thompson, Program Administrator ~ Planning Programs, ESB 1-26, 780-492-4416, nancy.thompson@ualberta.ca. You will need to get (proximity) OneCard access to the lab CCIS L1-219 during open building hours to work on your homework and term projects. If you are in the lab when another class is being taught, please be courteous and give up the machine if asked to.

The instructor will gather past term projects and post them on the class website for student's reference.

10. Overall Grading Policy

Homework assignments: 35%

Term project poster and presentation: 40%

Term paper: 15%

Attendance and participation: 10%

All assignments and the term project in this course will be given a numerical mark. A cumulative

course mark will be calculated from those individual marks, weighted as tabulated above. A final letter grade will be assigned based upon your cumulative mark and the instructor's analysis of the class's cumulative mark distribution. Where possible, natural breaks in the cumulative mark distribution may be used in assigning grades, but no pre-determined distribution of grades will be imposed on the class. Your grade will reflect a combination of your absolute achievement and relative standing in the class.

If you have questions or concerns with a given grade for any homework or the project, send the instructor an email outlining the issue and specifically arguing, using evidence, why you think the given marks should be different. The professor will review your assignment or project with this concern in mind. However, adjustment of marks/grades is entirely the professor's prerogative.

Late submissions will carry a penalty as follows:

After deadline but before 12 hours from deadline: Penalty is 25% marks

After 12 hours but before 24 hours from deadline: Penalty is 50% marks

After 24 hours but before 48 hours from deadline: Penalty is 75% marks

Your submissions will be online and date-stamped by the server, except where indicated otherwise in assignment instructions. No late submissions will be accepted after two days from deadline.

Missed Homework Assignments, Final Poster/Presentation, or Term Paper

For an excused absence where the cause is religious belief, a student must contact the instructor within two weeks of the start of classes to request accommodation for the term (including the final poster/presentation). The student will have to provide a standard declaration (available at <https://cloudfront.ualberta.ca/-/media/science/research-and-teaching/documents/2013/departement-declaration.pdf>).

A student who cannot complete one of the course assignments due to incapacitating illness, severe domestic affliction, or other compelling reason should contact the instructor via e-mail as soon as possible. The weight of the missed assignment will be added to the final poster/presentation. In the case of missing the submission for the final poster (/not being available for the presentation) or missing the submission of the final term paper, students should contact the instructor within 1 day (24 hours).

A student who cannot submit the poster or be present for the final presentation due to incapacitating illness, severe domestic affliction or other compelling reasons will have the presentation portion of the grade included in the grading for the final poster. The final poster will be due in Tory 3-113 by 11:00 A.M. on Wednesday April 11, 2018. Similarly, a student who cannot submit the final term paper by the due date due to incapacitating illness, severe domestic affliction or other compelling reasons must submit his/her term paper to the instructor at shirgaokar@ualberta.ca by 11:00 A.M. on Wednesday April 18, 2018.

IMPORTANT: Deferred submissions are a privilege and not a right; there is no guarantee that a deferred submission will be granted. Misrepresentation of Facts to gain a deferred submission is a serious breach of the Code of Student Behaviour.

11. Grading Policy for Assignments

All homework will include a set of tasks that are to be performed and reported in a write up. For the six (6) lab-based homework assignments, the assignment description will show how many marks each step carries. Each task will be evaluated according to the following criteria:

- a. Academic merit of your answers to the questions.
- b. Conciseness and completeness of your answers: Please write to the point and explicitly address the questions or tasks. Avoid using unnecessary graphics/tables unless they add value. Similarly don't write what you can show and discuss through graphics/tables. Make sure to number graphics/tables and use captions for them. Refer to the graphics/tables you include in your written answer. Graphics/tables without any reference or accompanying explanation will be disregarded.
- c. Organization and presentation: Remember that your homework assignment is a professional document that reflects your thinking and learning process. Please organize your writing in a logical fashion so that your answers can be easily identified. A general format for your presentation should, as a minimum, include the following components:
 - i. Question number
 - ii. Your answer and discussion
 - iii. Your supporting evidence (graphics/tables) as required.
- d. Compliance with assignment instructions: Before submitting your assignments please verify that your submission complies with the submission instructions. Make sure all the necessary files/deliverables are included in your submission.

Each assignment's instructions will include the total maximum marks and its percentage weighting in the final course mark. The contribution of each assignment to your final mark will therefore be the assignment marks given to you multiplied by the assignment percentage. Please note that the assignments have different percentages depending on their level of effort. Also note that some assignments may include bonus questions or tasks.

12. Additional Notes

1. The University of Alberta is committed to the highest standards of *academic integrity and honesty*. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (see <http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx>) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

From time to time, the instructor may run checks of a random sample of student's assignments for plagiarism. All forms of dishonesty are unacceptable at the University. Any offence will be reported to the Senior Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offences. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for cheating on any examination will include a disciplinary failing grade (no exceptions) and senior students should expect a period of suspension or expulsion from the University of Alberta.

2. Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).
3. Policy about course outlines can be found in §23.4(2) of the University Calendar.
4. Specialized Support and Disability Services (SSDS) provides assistance to University students whose disabilities involve any number of conditions affecting mobility, vision, hearing, learning or mental or physical health. Students who require accommodations in this course due to a disability affecting mobility, vision, hearing, learning, or mental or physical health are advised to discuss their needs with Specialized Support and Disability Services (see <http://www.ssd.ualberta.ca/>). Please do not hesitate to contact the instructor regarding your special needs if you encounter any issues.
5. Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Student Success Centre (<https://www.studentsuccess.ualberta.ca/>), 2-300 Students' Union Building, 492-2682 (phone) or success@ualberta.ca
6. Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced in class.
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